Electrodynamic Differential Amplifier With Bias Magnetization

SOV/ 161-58-1-17/33

ASSOCIATION: Kafedra elektricheskikh mashin Moskovskogo energeticheskogo instituta (The Chair of Electrical Machines at the Moscow Institute of Power Engineering)

SUBMITTED: January 4, 1958

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An experimental investigation of an amplidyne with sub-magnetisation.

recommended. Characteristics of the magnetic amplifier without frame, with a steel frame, and with a steel frame and poles, are given in Fig.3, to show that the leakage fluxes appreciably influence the characteristics. Armature current and control current are related in Fig.4. The amplidyne with sub-magnetisation can give a high amplification factor with stable characteristics and a stable power amplification factor of 5×10^5 was obtained in experimental machines. The influence of the number of poles is discussed. Armature voltage and the control current for various currents in the compensating winding are related in Fig.5. Transverse armature reaction has little influence on the characteristics of the amplidyne; its influence is analysed as in an ordinary machine. The influence of longitudinal armature reaction flux is briefly discussed. All the experimental models of amplidynes with sub-magnetisation were 10% heavier than standard amplidynes of the cross-field type of the same output but with an amplification factor of 1,000. The experimental machine suffered from the need to use standard components. Selenium rectifiers were used in the experimental models, but germanium rectifiers will improve the characteristics of the machine. To a first approximation, an amplidyne with sub-magnetisation working into an inductive load may be considered as an aperiodic link. This is confirmed by oscillograms of transient processes given in Figs.6 & 7.

An experimental investigation of an amplidyne with sub-magnetisation.

Fig.6 shows an oscillogram of the armature voltage resulting from a sudden change in the control current. Fig.7 compares change in voltage in a cross-field amplidyne under the same conditions. The time-constant of the amplidyne with sub-magnetisation can be reduced by introducing flexible feed-back or by increasing the frequency of the a.c. voltage. It is concluded that despite manufacturing difficulties, amplidynes with sub-magnetisation will be introduced. They can be made in multipole form. The experimental machine of 1 kW gave an amplification factor of 5×10^5 with the comparatively high speed of 0.5 seconds. Combining the d.c. machine and amplidyne into a single set does not reduce weight, but it makes possible the reduction of the remanent field. The differential circuit of amplidynes with sub-magnetisation with internal feed-back, which avoids the need for special feed-back and compensating windings, should be further investigated. So should the operation of the machine when the armature is supplied from a magnetic amplifier built into the motor stator. There are 7 figures, no literature references.

ASSOCIATIONS: Moscow Power Institute (Moskovskiy energeticleskiy institut)
Works imeni Vladimir Il'ich (Zavod imeni Vladimira Il'icha)

AVAILABLE: Library of Congress.

Card 3/3

RADIN, V. I. Cand Tech Sci -- (diss) "Dynamoelectric amplifiers with ~~radius-~~ pitch of the ~~rotor~~ windings." Mos, TsBTI NII [Sci Res Inst] of Electrical Industry, 1959. 16 pp with drawings (Min of Higher Education USSR. All-Union Correspondence Polytechnic Inst. Chair of Electrical Machines), 170 copies (KL, 43-59, 125)

8 (5)

AUTHORS: 1) Kopylov, I. P., Candidate of Technical Sciences, 2) Radin, V. I., Engineer

SOV/105-59-11-12/32

TITLE: An Alternating Current Motor Amplifier

PERIODICAL: Elektrichestvo, 1959, Nr 11, pp 56 - 60 (USSR)

ABSTRACT: In the beginning the use of alternating current commutator motors in enterprises where the number of revolutions has to be changed is pointed out and a new motor type of this kind is mentioned, which is a modification of the Schrag-Richter motor. In this type the induction controller which controls the fed rotor voltage is used with which a change of the number of revolutions of 30 :-1 may be achieved. Figure 1 gives the principle scheme of a series motor of this type with a magnetic amplifier to control the armature voltage. Figure 2 gives the principle scheme of a motor amplifier in which amplifier and motor are combined. The magnetic amplifier is fitted into the stator of the motor and an important decrease of the copper weight may be achieved by better cooling. By the combination of the two units on the stator the steel weight is reduced by 30-40%. The single-phase commutator motor shown in figure 3

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was constructed on the basis of a series production magnetic amplifier and a series production motor in the 'Plant' imeni Vladimir Il'ich. The motor amplifier has 3 kw, 127 v, 50 cps, and 9000 rpm. Engineer Yu. M. Belen'kiy and Engineer S. R. Troitskiy assisted in the investigations. The distribution of the magnetic flux in the stator shown in figure 4 indicates that the amplifier characteristics are changed due to the irregular distribution of the magnetic flux. The diagram on figure 5 shows that by applying an excitation flux the linear zone and the amplification factor of the characteristics are reduced, which leads to a decrease in the short-circuit current with maximum control pulse. When the control pulse is lacking the excitation flux has no influence on the magnetic amplifier characteristics. Furthermore, the equivalent circuit scheme (Fig 6) is discussed and the nonlinear differential equations (1) and (2) are given. The approximation of the magnetization curves from these equations through two straight lines may be obtained from the equations of a conventional magnetic amplifier. The position of the working point is shown by the diagram on figure 7 and the working characteristics are discussed by the diagram in figure 8. A large air gap and a small field overlap are recommended to reduce the armature

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reaction. Calculations showed that the alternating current motor amplifier can be constructed to a maximum power of 3 - 3.5 kw, 9000 - 12,000 rpm without auxiliary poles and compound coils. The time constant of a motor amplifier is given with 2 seconds. In conclusion, it is said that an equilibrium ratio copper/steel of 1 : 5 to 1 : 6 can be achieved with motor amplifiers, that it needs no starting equipment and that it has a high efficiency and good dynamical properties. There are 9 figures and 3 Soviet references.

ASSOCIATION: 1) Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering). 2) Zavod im. Vladimira Il'icha (Plant imeni Vladimir Il'ich)

SUBMITTED: June 23, 1959

Card 3/3

SOV/141-59-11-1/21

AUTHOR: Rudin, V.I., Engineer

TITLE: Commutation in a Cross-Field Amplidyne with Half-Span Armature Winding

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 11, pp 79-89 (USSR)

ABSTRACT: Usually a cross-field amplidyne operates stably only when there is some under-compensation of the direct-axis armature reaction and when the brushes are displaced in the direction of rotation. Brushes of low transient resistance, which give a stable contact, can seldom be used in the short-circuited circuit of the amplidyne, partly because their use leads to unsatisfactory commutation and partly because there is a sharp increase in the de-magnetising effect on commutating currents. Conditions are usually much better if the amplidyne armature has a half-span winding. The quadrature-axis armature reaction field in such an amplidyne is shown in Fig.1; the brushes are in the zone of the large slots. The induction in this zone can be determined approximately by the total current law, as indicated in Fig.2, disclosing that the e.m.f. induced in the

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Commutation in a Cross-Field Amplidyne with Half-Span Armature Winding

commutating section by quadrature-axis armature reaction is small. It is then shown that the reactive e.m.f in the machine is also very favourable. The locations of the half-span sections of the amplidyne winding during commutation are illustrated diagrammatically in Fig. 3. The reactive e.m.f is reduced because there is no mutual induction between commutating sections and the end-windings are short. Commutation of the one pair of brushes does not impair that of the other pair of brushes. With a half-span winding, the commutation conditions of the brushes in the short-circuited path are much better than in an amplidyne with diametric pitch. Hence copper-graphite brushes can be used; they have a low transient resistance, ensuring stable contact and hence more stable operation of the amplidyne. Indeed, with the brush-gear properly adjusted, stable operation can be obtained with over-compensation or when the brushes are displaced from the neutral against the direction of rotation. The demagnetising effect

Commutation in a Cross-Field Amplidyne with Half-Span Armature Winding

of commutating currents is then discussed. Their influence on the static and dynamic characteristics of an amplidyne with diametric pitch is considerable and has been studied elsewhere. In an amplidyne with half-span winding the demagnetising effect of the commutating currents diminishes if normal graphite brushes are used but becomes more appreciable when brushes of low contact-resistance are used. Existing methods of calculating the reaction of commutating currents are discussed; a method suggested by the present author has been the subject of criticism, which is here refuted. The method is then used to examine the transient process of increase of no-load voltage of a cross-field amplidyne. The equations of the transient process with the brushes installed on the neutral are written in operator form by expressions (7), (8) and (9). The required solutions are given by equations (14), (15) and (16) and it is shown that the reaction of commutation

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currents can be represented as an internal negative feed-back which increases the speed of operation of the amplidyne. It reduces the amplification factor and the oscillatory process which is set up is rapidly damped. There are 6 figures and 8 Soviet references.

ASSOCIATION: Moskovskiy elektromekhanicheskiy zavod imeni Vladimira Il'icha
(The Moscow Electromechanical Works imeni Vladimir Il'ich)

Card 4/4

BARIYEV, Nazim Vafinovich; DOBROVOL'SKIY, Lev Alekseyevich;
SEDAKOV, Leonid Vasil'yevich; RADIN, V.I., red.;
BUL'DYAYEV, N.A., tekhn. red.

[Amplidyne amplifiers]Elektromashinnyi usilitel' poperechnogo polia. Moskva, Gosenergoizdat, 1962. 55 p. (Biblioteka elektromontera, no.80) (MIRA 16:6)
(Rotating amplifiers)

RADIN, Vladimir Isakovich; KUZNETSOV, N.A., red.; BORUNOV, N.I., tekhn. red.

[Amplidynes]Elektromashinnye usiliteli. Moskva, Gosenergoizdat, 1962. 75 p. (Biblioteka po avtomatike, no.58) (Rotating amplifiers) (MIRA 15:10)

ANTONOV, Mikhail Vasil'yevich, inzh.; KOPYLOV, Igor' Petrovich, kand. tekhn.nauk, dotsent; RADIN, Vladimir Isaakovich, kand.tekhn. nauk

Use of the inverse synchronous field in single-phase electrical machines. Izv.vys.ucheb.zav.; elektromekh. 5 no.9:994-1001 '62. (MIRA 16:1)

1. Nachal'nik elektromashinnoy laboratorii Moskovskogo elektromekhanicheskogo zavoda imeni Vladimira Il'icha (for Antonov). 2. Kafedra elektricheskikh mashin Moskovskogo energeticheskogo instituta (for Kopylov). 3. Nachal'nik tsentral'noy laboratorii Moskovskogo elektromekhanicheskogo zavoda imeni Vladimira Il'icha (for Radin).
(Electric driving)
(Electricity in agriculture)

ALEKSEYEV, A.P.; CHEKMENEV, Ye.Ye.; RADIN, V.I., kand.tekhn.nauk, retsenzent; SAVEL'YEV, Ye.Ya., red.; SOKOLOVA, T.F., tekhn. red.

[Electrical machinery with carburetor engines] Elektroagregaty s karbiuratornymi dvigateliami. Moskva, Mashgiz, 1963. 294 p. (MIRA 16:11)
(Diesel electric power plants)

ANIKIN, Mikhail Vasil'yevich; RADIN, Vladimir [illegible], zam.glavnogo konstruktora; TROSHIN, Viktor Nikolayevich

Use of the third harmonic of the field for the excitation of synchronous generators. Izv.vys.ucheb.zav., elektromekh. 8 no.3:300-305 '65. (MIRA 18:6)

1. Zamestitel' glavnogo konstruktora Moskovskogo elektromekhanicheskogo zavoda imeni Vladimira Il'icha (for Antonov). 2. Glavnyy konstruktor Moskovskogo elektromekhanicheskogo zavoda imeni Vladimira Il'icha (for Radin). 3. Nachal'nik elektromashinnoy laboratorii Moskovskogo elektromekhanicheskogo zavoda imeni Vladimira Il'icha (for Troshin).

L 57888-65 EWT(1)/EWG(m)/EWA(h) Peb

ACCESSION NR: AP5012344 UR/0292/65/000/005/0007/0010

621.331.3.025.1

AUTHOR: Antonov, M. V. (Engineer); Radin, V. I. (Candidate of technical sciences)

TITLE: Single-phase synchronous generator using a negative-sequence synchronous field

SOURCE: Elektrotekhnika, no. 5, 1965, 7-10

TOPIC TAGS: synchronous generator, single phase generator, generator excitation

ABSTRACT: The results are reported of a theoretical and experimental investigation of a single-phase nonsalient-pole synchronous generator having one or two quadrature-axis windings (on its rotor) whose output is rectified and used for excitation. The operating process in such a generator is theoretically examined. It is shown that, with the quadrature-axis winding having 1/2 to 2/3

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ACCESSION NR: AP5012344

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turns of the direct-axis winding and with a one-rectifier circuit, a generator can be built with an inherent voltage regulation for zero-to-nominal and active-to-inductive loads. Experiments were conducted with a 2-kw, 230-v, 3000-rpm generator. The load voltage - load current and field current - load current characteristics are presented. The quadrature-axis excitation is also very beneficial for the generator voltage waveshape: it is as good as or better than that of a salient-pole generator. Orig. art. has: 4 figures, 24 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EE

NO REF SOV: 000 OTHER: 000

Card 2/2

RADIN, Vladimir Isaakovich, kand. tekhn. nauk; CHERCHEPOV, Vyacheslav Vyacheslavovich, starshiy prepodavatel'; VYSHINSKAYA, Valentina Pavlovna, inzh.

Thermal design of enclosed short-circuited asynchronous motors using digital computers. Izv. vys. ucheb. zav.; elektromekh. 8 no.5:595-598 '65. (MIRA 18:7)

1. Glavnyy konstruktor elektromekhanicheskogo zavoda imeni Vladimira Il'icha (for Radin). 2. Kafedra elektricheskikh mashin, apparatov, matematicheskikh i schetnoreshayushchikh priborov i ustroystv Novocherkasskogo politekhnicheskogo instituta (for Cherchepov). 3. Vychislitel'nyy tsentr Novocherkasskogo politekhnicheskogo instituta (for Vyshinskaya).

CHERCHEPOV, V.V., inzh.; RADIN, V.I., kand. tekhn. nauk

Study of the heating of asynchronous motors by using analog computers. Elektrotekhnika 35 no.7:15-19 '64. (MIRA 17:11)

L 4174-66 EWT(1)/EPA(s)-2/EWG(m)/EWA(h) TT/AT

ACC NR: AP5025699 SOURCE CODE: UR/0286/65/000/018/0048/0048

INVENTOR: Radin, V. I.; Antonov, M. V.

ORG: none

TITLE: Contactless single-phase synchronous generator. Class 21, No. 174701

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 48

TOPIC TAGS: synchronous generator, electric generator unit

ABSTRACT: The proposed contactless single-phase synchronous generator (see figure) is

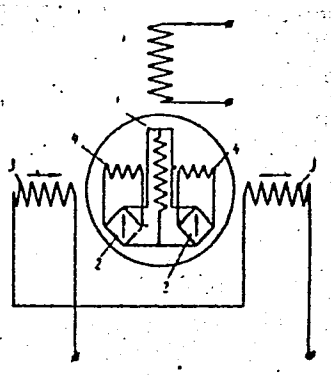

Fig. 1. Contactless single-phase synchronous generator

1 - Excitation winding; 2 - rotating rectifiers; 3 - control winding on the stator; 4 - quadrature windings.

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UDC: 621.313.322.025.1

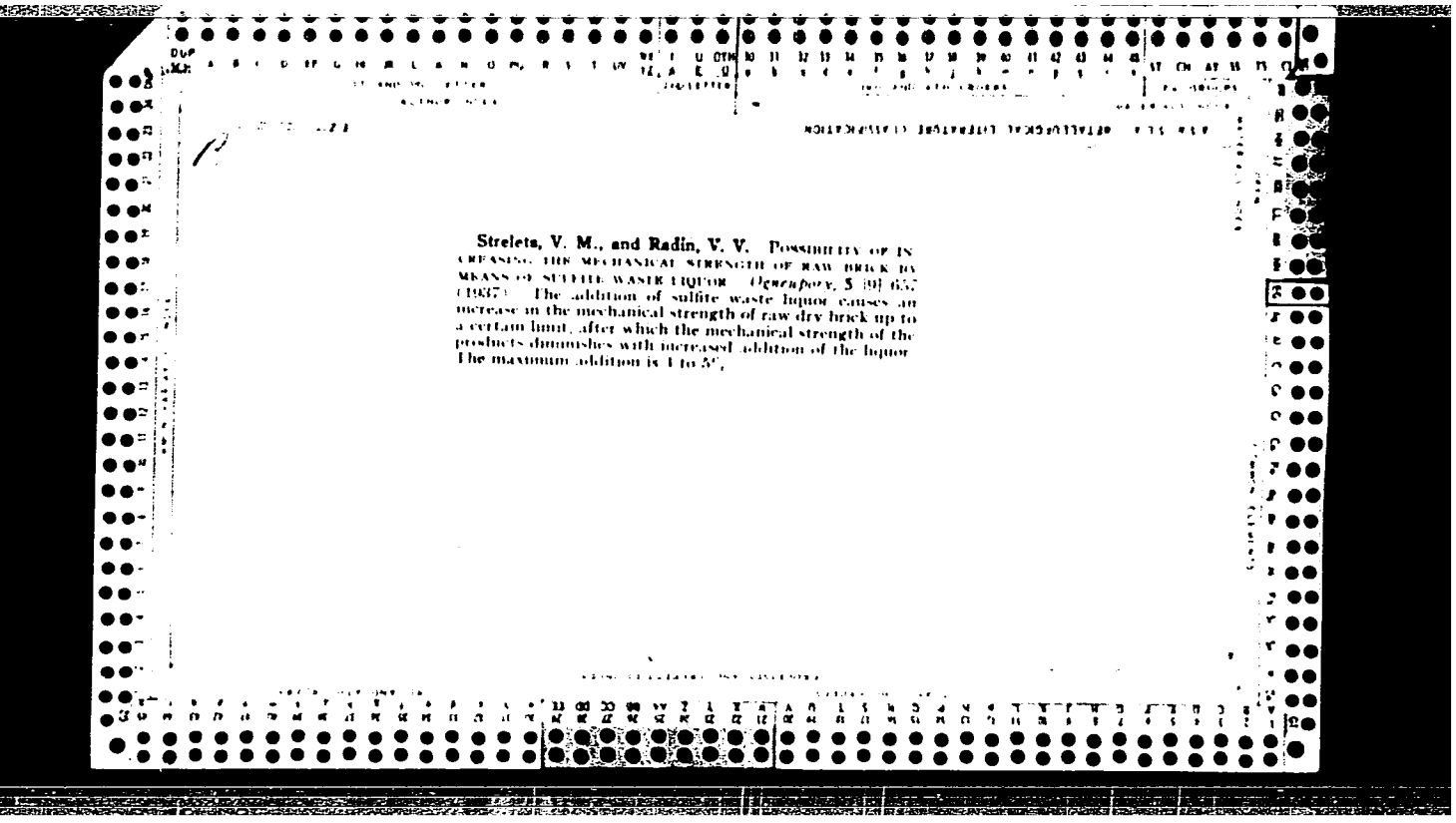
L 4174-66

ACC NR: AP5025699

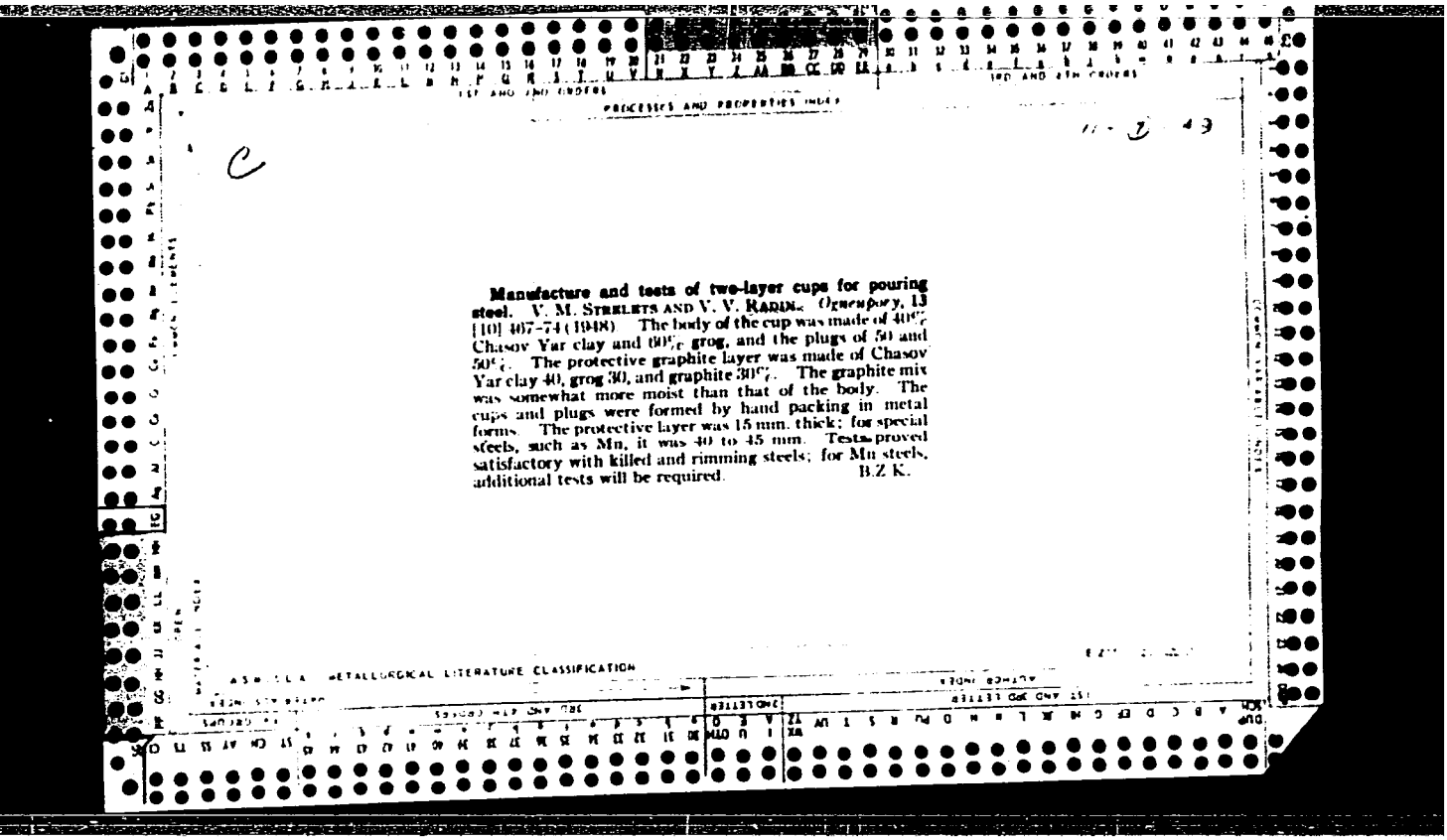
designed for the excitation of reverse synchronous fields. It carries an excitation winding terminated in a rotating rectifier. The control winding is mounted on the stator. It has two poles consisting of two opposing series-connected half-windings. Two quadrature windings are mounted on the rotor. Each is connected with the excitation winding through full-wave rotating rectifiers. Orig. art. has: 1 figure. [DW]

SUB CODE: EE/ SUBM DATE: 15Aug63/ ORIG REF: 000/ OTH REF: 000/ ATD PRESS: 4/29

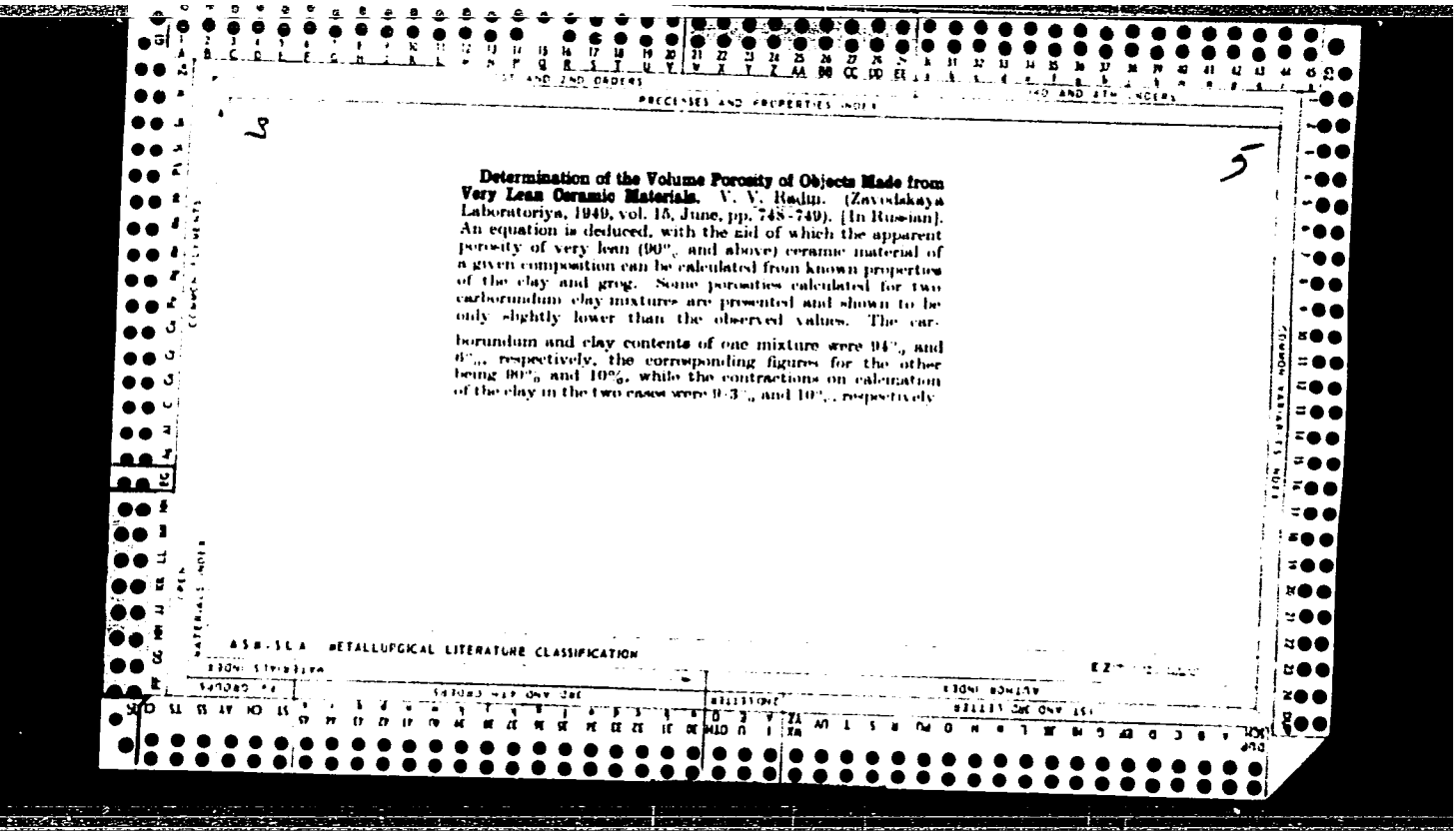
Card 2/2 hd



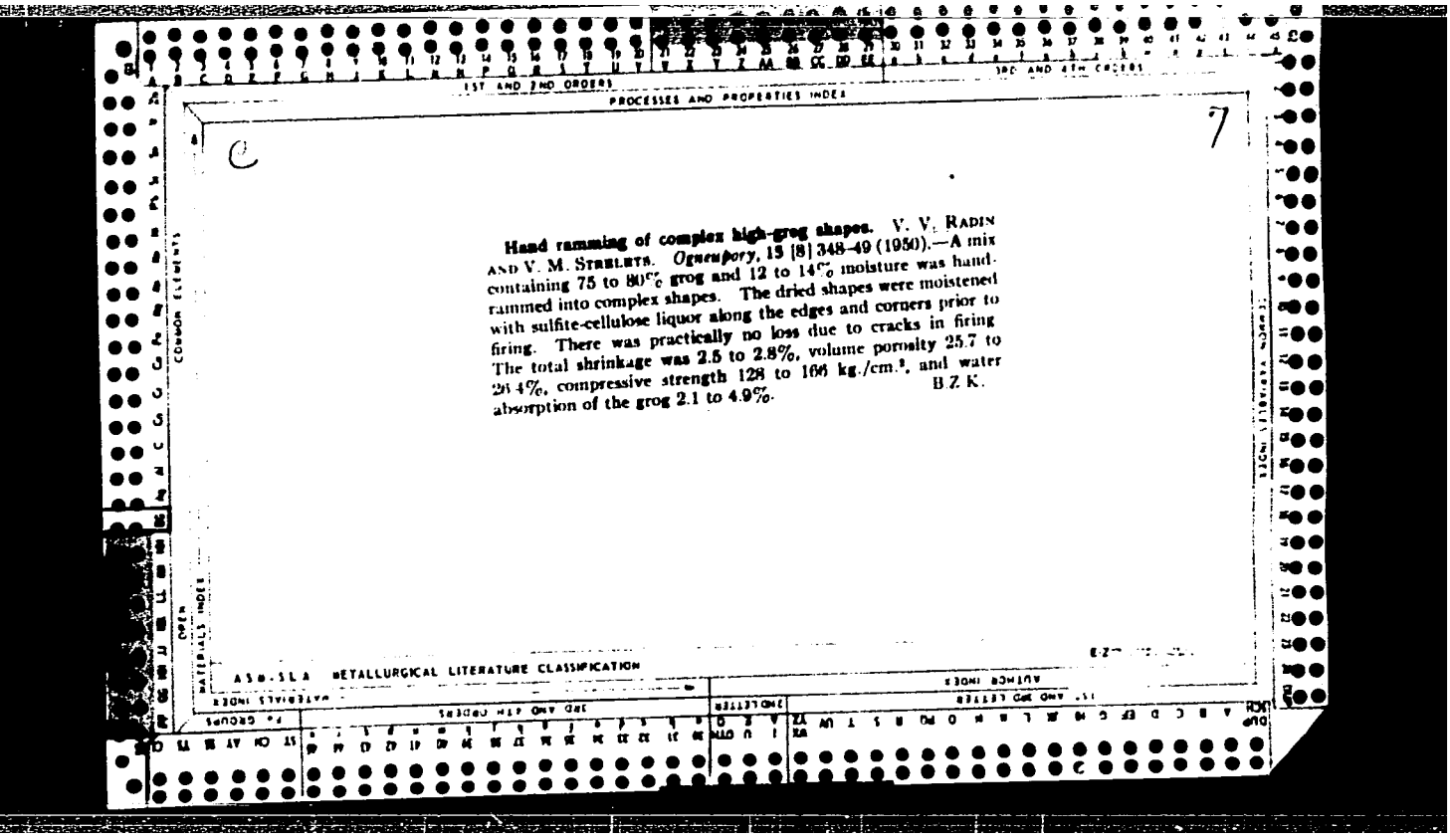
Strelets, V. M., and Radin, V. V. POSSIBILITY OF INCREASING THE MECHANICAL STRENGTH OF RAW BRICK BY MEANS OF SULFITE WASTE LIQUOR. *Ogneupory*, 5 [9] 653 (1937). The addition of sulfite waste liquor causes an increase in the mechanical strength of raw dry brick up to a certain limit, after which the mechanical strength of the products diminishes with increased addition of the liquor. The maximum addition is 1 to 3%.



Manufacture and tests of two-layer cups for pouring steel. V. M. STRELETS AND V. V. RARIN. *Ogneupory*, 13 [10] 467–74 (1948). The body of the cup was made of 40% Chasov Yar clay and 60% grog, and the plugs of 50 and 50%. The protective graphite layer was made of Chasov Yar clay 40, grog 30, and graphite 30%. The graphite mix was somewhat more moist than that of the body. The cups and plugs were formed by hand packing in metal forms. The protective layer was 15 mm. thick; for special steels, such as Mn, it was 40 to 45 mm. Tests proved satisfactory with killed and rimming steels; for Mn steels, additional tests will be required. B.Z K.



Determination of the Volume Porosity of Objects Made from Very Lean Ceramic Materials. V. V. Radin. (Zavodskaya Laboratoriya, 1940, vol. 15, June, pp. 748–749). [In Russian]. An equation is deduced, with the aid of which the apparent porosity of very lean (90% and above) ceramic material of a given composition can be calculated from known properties of the clay and grog. Some porosities calculated for two carborundum clay mixture are presented and shown to be only slightly lower than the observed values. The carborundum and clay contents of one mixture were 94%, and 6%, respectively, the corresponding figures for the other being 90% and 10%, while the contractions on calcination of the clay in the two cases were 9·3% and 10%, respectively

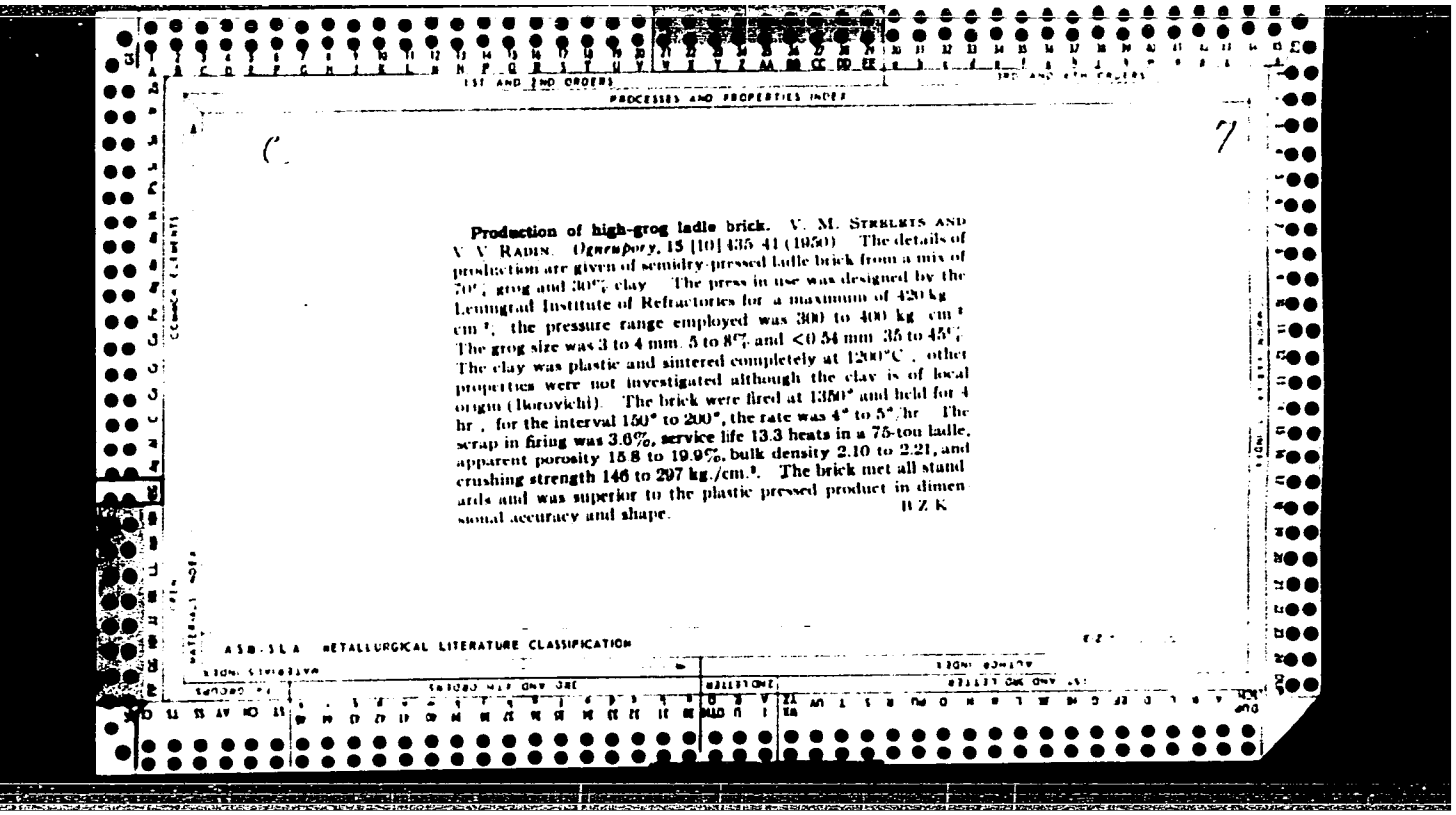


PROCESSES AND PROPERTIES INDEX

7

Hand ramming of complex high-grog shapes. V. V. RADIN AND V. M. STRELETS. *Ogneupory*, 15 [8] 348–49 (1950).—A mix containing 75 to 80% grog and 12 to 14% moisture was hand-rammed into complex shapes. The dried shapes were moistened with sulfite-cellulose liquor along the edges and corners prior to firing. There was practically no loss due to cracks in firing. The total shrinkage was 2.5 to 2.8%, volume porosity 25.7 to 26.4%, compressive strength 128 to 166 kg./cm.², and water absorption of the grog 2.1 to 4.9%. B.Z.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Production of high-grog ladle brick. V. M. Streletsand V. V. Radin. *Ogneupory*, 15 [10] 435–41 (1950). The details of production are given of semidry-pressed ladle brick from a mix of 70% grog and 30% clay. The press in use was designed by the Leningrad Institute of Refractories for a maximum of 420 kg cm^{-2}; the pressure range employed was 300 to 400 kg cm^{-2}. The grog size was 3 to 4 mm. 5 to 8%, and <0.54 mm. 35 to 45%. The clay was plastic and sintered completely at 1200°C.; other properties were not investigated although the clay is of local origin (Borovichi). The brick were fired at 1350° and held for 4 hr., for the interval 150° to 200°, the rate was 4° to 5°/hr. The scrap in firing was 3.6%, service life 13.3 heats in a 75-ton ladle, apparent porosity 15.8 to 19.9%, bulk density 2.10 to 2.21, and crushing strength 146 to 297 kg./cm.^{2}. The brick met all standards and was superior to the plastic pressed product in dimensional accuracy and shape.

H Z K

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Redin, V. M.

USSR/Engineering - Ceramic Materials Ceramics Jan 50

"Simplified Method for Determining the Resistance to Slag Penetration of Ceramic Materials," V. M. Strelets, V. M. Redin, Borovichi "Krasnyy Keramik" Combine, Zav Lab

"Lavod Lab" Vol XVI, No 1

Suggests using electric kryptol furnace, usually available in every plant laboratory. Evaluates test results by measuring decrease in volume of a sample as to its initial volume. Method is sufficiently accurate.

PA 159T17

RADIN, V. V.

USSR/Engineering - Ceramics, Properties of Efficiency, Industrial May 50

"Accelerated Method for Determining Forming Properties of Chamotte Materials," V. M. Strelets, V. V. Radin, Borovichi "Krasnyy Keramik" Combine, 4½ pp

Describes new instrument constructed by authors for determining density of ceramic mass. Method based on measuring depth reached by conical penetrator forced into sample under certain load. Instrument of very simple design, registers, penetration depth with accuracy up to 0.5 mm.

PA 160T34

RADIN, V. V.

Production of high-grog brick. V. M. STEPANOV AND V. V. RADIN. Ogneupory, 15 [3] 135-41 (1950).—The details of production are given of semidry-pressed ladle brick from a mix of 70% grog and 30% clay. The press in use was designed by the Leningrad Institute of Refractories for a maximum of 420 kg./-cm.^{2}; the pressure range employed was 300 to 400 kg./cm.^{2}. The grog size was 3 to 4 mm. 5 to 8% and <0.5 mm. 35 to 45%. The clay was plastic and sintered completely at 1200°C.; other properties were not investigated although the clay is of local origin (Borovichi). The brick were fired at 1350° and held for 4 hr.; for the interval 150 to 200°, the rate was 4° to 5°/hr. The scrap in firing was 3.6%, service life 13.3 heats in a 75-ton ladle, apparent porosity 15.8 to 19.9%, bulk density 2.10 to 2.21, and crushing strength 146 to 297 kg./cm.^{2}. The brick met all standards and was superior to the plastic pressed product in dimensional accuracy and shape. B.Z.K.

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High alumina shapes with diaspore concentrate. V. M. Strelis and V. V. Radin. *Ogneupory*, 16 [6] 243–48 (1951).—Semidry pressed checker brick suitable for regenerators was made from a mix of clay 63.2, grog 27.1, and diaspore concentrate 9.7%, and fired at 1380°. The characteristics were: $Al_2O_3 + TiO_2$ 42%, crushing strength 316 kg./cm.², bulk weight 2.13 gm./cm.³, apparent porosity 20.2%, refractoriness cones 173 to 175, and initial deformation under 2 kg./cm.² at 1410°. The shapes having 50% $Al_2O_3 + TiO_2$ were made by plastic molding on laboratory and semicommercial scales. The mix consisted of diaspore grog 42.7 to 44.5, clay 44.5 to 45.0, and diaspore concentrate 11.0 to 12.3%. The grog was made by calcining a mixture of 70% concentrate and 30% clay at 1320° and ground to give 60% grains of less than 0.54 mm. The shapes were fired at 1420° and held for 26 hr. The properties were as follows: crushing strength 308 to 477 kg./cm.², apparent porosity 23 to 25.8%, refractoriness above 1750°, and $Al_2O_3 + TiO_2$ 50.13 to 51.48%. Shapes having 50 to 55% $Al_2O_3 + TiO_2$ were also made on a laboratory scale by semidry pressing, using the following mixes: (1) 60% diaspore grog and 40% clay and (2) 30% diaspore grog (with a fraction less than 0.54 mm. removed) and 70% fine grain bond (over 80% less than 0.088 mm.) obtained by grinding 70% concentrate with 30% clay. The grog in the first mix was calcined at 1350° and 1500° and had water absorption of 19.2 and 11.8%; the grog in the second mix was calcined at 1320° and 1580° and had water absorption of 16.1 and 13.0%. The shapes made from the first mix were pressed under 400 and 200 kg./cm.² and fired at 1450° to 1500° and 1420° to 1440° (held for 18 hr. and over). The shapes made from second mix (1320° grog) pressed under 200 kg./cm.² and fired at 1440° (held for 20 hr.) had the following characteristic: Al_2O_3 55.21%, total shrinkage 2.2%, bulk weight 2.12 gm./cm.³, apparent porosity 20.1%, crushing strength 741 kg./cm.², and initial softening at 1480°. B.Z.K.

RADIN, V.V., inzh.

Overcoming difficulties in the use of Sherekhovichi clays.
Ogneupory 18 no.8:370-374 '53. (MIRA 11:10)
(Refractory materials) (Novgorod Province--Fire clay)

RADIN, V.V.

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4520

Use of vibro-ground clay for the improvement of quality fire-clay refractories. K. A. Shaikov, P. V. Nevzglimova, and V. V. Radin. *Ogneupory* 21, No. 1, 9-12(1956).—The fire clay was ground in a vibro-mill (1500 vibration/min.) for 45 min. The granular compn.: >50 μ 47.8; 50-10 μ 42.9; 10-5 μ 3.5; 5-1 μ 5.8% and <1μ 0%. The application of vibro-grinding of clay has improved the mech. properties of articles. Alexis N. Pestoff

Mag

KONAREV, M.U.; RED'KO, G.S.; RADIN, V.V.

Using Kirovograd clay at the Borovichi Refractories Combine. Ogneupory 29 no.11:495-496 '64. (MIRA 18:1)

1. Borovichskiy kombinat ogneuporov.

[illegible], [illegible]; [illegible], V.V.; RATN[illegible], [illegible].Ya.; Prinimali uchastiye: [illegible], O.T.; IVANOV, M.I.; [illegible], [illegible].

Causes for the growth of grog materials during their firing. Ogneupory 30 no.8:1-6 '65. (MIRA 18:8)

1. Borovichskiy kombinat ogneuporov.

RADIN, Ya.; MINKEVICH, G.

New developments introduced by construction workers in Sverdlovsk.
Stroitel' 9 no.2:15,18-19 F '63. (MIRA 16:2)
(Building—Technological innovations)

KABAN'KOV, V.Ya.; RADIN, Ye.Ya.

Preliminary work results of the Birekta, Dzhelinda, and Anabar Expeditions in 1959. Inform.biul.NIIGA no.18:48-53 '60.
(MIRA 14:6)
(Anabar Valley—Diamonds) (Olenek Valley—Diamonds)

06478
SOV/141-1-5-6- 22/28

AUTHOR: Radin, Yu.P.

TITLE: On a Certain Method of Measurement of Permittivity in the Centimetre Region

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Vol 1, Nr 5-6, pp 177 - 179 (USSR)

ABSTRACT: Le Bot and Le Montagner (Ref 1) have described a new method of measurement of permittivity in waveguides. The method is called "cylindrical rod" method and is based on determination of the equivalent conductance $Y/Y_0 = G + jB$ due to placing a cylindrical dielectric at the centre of the wider wall of a rectangular waveguide. The rod is placed parallel to the electric vector of the H_{10} wave. The components of the complex permittivity $\varepsilon = \mu' - j\varepsilon''$ may be determined from the waveguide parameters, sample dimensions and experimentally measured values of G and B. This method was used to find ε' and ε'' of solid and liquid dielectrics at $\lambda = 3.2$ cm. Liquids were placed in thin-walled cylindrical glass tubes and the effect of such tubes was allowed for. The imaginary component of the complex permittivity ε'', could not be

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measured in samples with low losses. The values of the real component ε' were found to be independent of the sample diameter. The best results were obtained when the ratio of the sample diameter to the width of the waveguide wall to which it was attached was 0.07 - 0.08. Under such conditions, the error in measurement of ε' was 1 - 1.5% and in measurement of ε'' of substances with high losses the error was 5% . Measurements were made on the following materials: polystyrene, polymethyl methacrylate, ebonite, "textolite", steatite ceramic, glass 3S-5, KBr, NaCl, TiO_2, Se, Cu_2O, ZnO, WO_3, Ge, benzene, isobutyl alcohol, ethyl bromide, acetone, distilled water. The value of ε'' could be measured only for TiO_2, ZnO, WO_3, Ge, benzene, isobutyl alcohol, ethyl bromide, acetone, distilled water. The results are given in a table on p 78. The experience gained in these measurements indicates that the method is simple and reliable and that it can be used

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to measure dielectric properties of semiconductors. The disadvantage of the method lies in the difficulty of measurements of ε'' low-loss substances. Acknowledgment is made to P.V. Golubkov for his advice.
There are 1 table and 5 references, 3 of which are French and 2 translations from English into Russian.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet (Saratov State University)

SUBMITTED: September 25, 1957

RADIN, Yu.P.; TARASOVA, N.V.

Temperature dependence of the dielectric permeability of dielectric substance in the centimeter wave band. Izv.vys.uch.zav.; fiz. no.4:87-90 '62. (MIRA 15:9)

1. Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo.
(Dielectric constants) (Microwaves)

DZIOMKO, V.M., KRASAVIN, I.A., RADIN, Yu.P.

8-Acetoxyquinaldine. Metod.poluch.khim.reak. i prepar. no.7: 8-10 '63. (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

ACCESSION NR: AP4020303 S/0139/64/000/001/0099/0103

AUTHOR: Radin, Yu. P.

TITLE: Study of the dielectric constants of some semiconductor materials by the method of cylindrical inhomogeneities in waveguides

SOURCE: IVUZ. Fizika, no. 1, 1964, 99-103

TOPIC TAGS: dielectric constant, semiconductor, cylindrical inhomogeneity, wave guide, monocrystalline germanium, electric conductivity, copper oxide, amorphous selenium, crystalline selenium

ABSTRACT: The complex dielectric constants of monocrystalline germanium samples having different specific electrical conductivities were measured under conditions of heavy losses. The method was essentially the one used by A. R. Khippel' (Dielektriki i ikh primeneniye, per. s ang. pod red. D. M. Kazarnovskogo, M., 1959). The wavelength used was 3.2 cm, and the mean square error in the measurement of the real part of the dielectric constant was 1-1.5%, while for the imaginary part it was 2-5%. The 'cylindrical bar' method was used for the measurement of the dielectric constant. From the same material (specific resistance of the order of 20 ohm·cm) samples were made of diameters 2.00, 1.50, and 1.00 mm,

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ACCESSION NR: AP4020303

with an accuracy of 0.01 mm. The results of the experiments showed that at a wavelength of 3.2 cm the real part of the dielectric constant did not depend on the specific resistance. Experiments were also performed on specimens of copper oxide and crystalline and amorphous selenium to ascertain the variation of the dielectric constant with temperature. In the case of copper oxide the results did not show any significant variation of the real part of the dielectric constant with temperature, but in the case of amorphous selenium the real part of the dielectric constant remained constant for sometime and then (in the region of 80-90C) increased abruptly, approaching the corresponding value for the crystalline material. This is partly caused by the transition of the material at this temperature from the amorphous to the crystalline state. The author thanks Professor P. V. Golubkov for his constant attention to this work and his valuable advice and L. N. Zlotina for collaboration in some of the experiments. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Saratovskiy gosuniversitet imeni N. G. Cherny*shevskogo (Saratov State University)

SUBMITTED: 26Oct62 ENCL: 00

SUB CODE: SS , EC NO REF SOV: 006 OTHER: 006

Card 2/2

ACCESSION NR: AP4040749 S/0142/64/007/002/0164/0170

AUTHOR: Radin, Yu. P.

TITLE: Calculation of a cylindrical inhomogeneity in a waveguide

SOURCE: IVUZ. Radiotekhnika, v. 7, no. 2, 1964, 164-170

TOPIC TAGS: waveguide propagation, waveguide equivalent resistance, waveguide diffraction, dielectric constant, waveguide inhomogeneity

ABSTRACT: A calculation method originally employed by L. Lewin (Advanced Theory of Waveguides, Iliffe, 1951) is used to evaluate the inhomogeneity introduced by a dielectric post in a rectangular waveguide, and to derive an expression for the equivalent impedance of the inhomogeneity. This expression is valid for either a dielectric or a metallic post of rectangular cross sections, and can be readily used for numerical calculations. The dielectric constant of several substances is obtained from measurements in the 3-cm band and calcu-

Card 1/2

ACCESSION NR: AP4040749

lations based on the derived expression. The theoretical calculations agree with experiment and with data by others. Orig. art. has: 1 figure, 28 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 09Jul62 DATE ACQ: ENCL: 01

SUB CODE: EC NR REF SOV: 003 OTHER: 005

Card 2/3

ACCESSION NR: AP4040749 ENCLOSURE: 01

Dielectric-constant values obtained experimentally using expressions of the present work (1) and of others (2)

Таблица 1

Material Материал	d, мм	ε' 1	ε' 2	ε'' 1	ε'' 2
Эбонит	2,01	2,67	2,66	—	—
Эбонит	1,50	2,67	2,66	—	—
Стекло ЗС-5	2,91	4,86	4,82	—	—
Стекло ЗС-5	1,50	4,83	4,82	—	—
NaCl (монокристалл)	2,00	5,57	5,52	—	—
Германий (монокристалл)	2,02	15,38	15,10	11,81	10,36
Вода дистиллированная	1,10	62,70	58,60	29,17	24,53
Эбонит*	2,05·2,05	2,66	—	—	—
KBr* (монокристалл)	2,35·2,27	4,46	—	—	—

Ebonite
ZS-5 glass
single crystal NaCl
s.c. germanium
dist. water
sing.crys. KBr

* Samples with square cross section

ε' - real and ε'' - imaginary parts of dielectric constant

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L 45526-66 EWT(l)/EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6013700 SOURCE CODE: UR/0058/65/000/010/H052/H053

AUTHOR: Radin, Yu. P.

TITLE: Some problems in the procedure of measuring inhomogeneities in a waveguide by the method of moving short-circuiting plunger

44
B

SOURCE: Ref. zh. Fizika, Abs. 10Zh358

REF. SOURCE: Sb. Vopr. elektron. sverkhvsok. chastot. Vyp. I. Saratov, Saratovsk. un-t, 1964, 140-148

TOPIC TAGS: waveguide diffraction, waveguide propagation, dielectric constant, electric measurement, titanium dioxide, microwave technology

ABSTRACT: The procedure can be used to measure the conductivity of dielectric posts in the waveguide and for measurements of the dielectric constant. The indicating probe occupies a fixed position. Plots are calculated for the power at the output of indicator probe as a function of the plunger position at different values of the reactance shunting the waveguide. For an ebonite rod and for a TiO_2 rod, the calculated curves are in good agreement with the measurement results. Calculated and experi-

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L 45526-66

ACC NR: AR6013700

mental plots are also given for the dependence of the microwave power at the output of a stationary probe, using samples in the form of plates. The limits of applicability of the discussed measurement procedure are discussed. Bibliography, 8 titles. V. Nikonov. [Translation of abstract]

SUB CODE: 09

Card 2/2 egb

PHASE I BOOK EXPLOITATION SOV/45[illegible]

Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta

Voprosy gazoturbovozostroyeniya i transportnoy teploenergetiki; sbornik statey (Problems in Gas-Turbine Locomotive Building and Heat-Power Engineering in Transportation; Collection of Articles) Moscow, Transzheldorizdat, 19[illegible]. [illegible] p. (Its: Trudy, vyp. 187) 1,000 copies printed.

Sponsoring Agency: Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta.

Eds. (Title page): Ye. T. Bartosh, Candidate of Technical Sciences, and A.V. Kas'yanov, Candidate of Technical Sciences; Ed. (Inside book): I.K. Petushkova; Tech. Ed.: P.A. Khitrov.

PURPOSE: This book is intended for engineering and technical personnel.

COVERAGE: The book consists of 13 articles on the results of theoretical investigation of gas turbine units with two-stage fuel combustion, and on theoretical and laboratory investigations of air tank units and their components. Special features of variable regimes of locomotive gas turbine engines and problems of fuel economy in locomotive and stationary units are discussed. No personalities are mentioned. References accompany some of the articles.

Bartosh, Ye. T., Candidate of Technical Sciences. Flow Distribution in Clusters of Pipes [illegible]

Yevtushenko, A.M., Candidate of Technical Sciences. Cutting [illegible] of Self-Sealing, [illegible]tion Gasket Rings

Kas'yanov, A.V., Candidate of Technical Sciences, [illegible] Candidate of Technical Sciences, and Ye. P. Khil'[illegible] Aerodynamic Investigation of Gas Turbine Locomotive Air Tank [illegible] [illegible]

Kalagin, L.V., Engineer. Determining Tolerances for the Dimensions of Centrifugal Fuel Swirlers [illegible]

Chernomordik, B.M., Engineer, Candidate of Technical Sciences, and K.F. Dobrikov, Engineer. Influence of Generator Gas C[illegible] the Combustion Process in a Piston Chamber [illegible]

Pavlov, S.F., Candidate of Technical Sciences. Experimental Investigation of Heat Exchange in Boiling on the Heating Surface of Clust[illegible] [illegible]

Postarnak, S.F., Engineer. Investigation and Selection of Type of Steam Turbines for Small Electric Power Stations [illegible]

Samokhvalova, A.I., Engineer. Aerodynamics of the C[illegible] of a Jet-Layered Fire Box With Pneumatic Fuel St[illegible] [illegible]

Vilnyeva, Ye. M., Engineer. Test Stand [illegible] in the Air Tank of a Gas Turbine Locomotive [illegible]

AVAILABLE: Library of Congress

(5)

KAS'YANOV, A.V., kand.tekhn.nauk; RADIN, Yu.Ye., kand.tekhn.nauk;
KHIL'KOVSKAYA, Ye.P., inzh.

Aerodynamic investigation of the elements of the gas-turbine locomotive air preheater. Trudy TSNII MPS no.187:110-126 '60.
(MIRA 13:11)

(Gas-turbine locomotives)

RADINA, F.L.

Local use of corticosteroids in otitis external. Sov.med. 25 no.5: 137-140 My '62. (MIRA 15:8)

1. Iz poliklinik No.8 pri Moskovskom gosudarstvennom universitete imeni Lomonosova (glavnyy vrach N.T.Starkova).
(CORTICOSTEROIDS) (EAR--DISEASES)

RADINA, F.L.

Changes in the mucous membrane of the nose, larynx and pharynx during corticosteroid therapy. Sov. med. 27 no.11:124-125 N '64. (MIRA 18:7)

1. Poliklinika No.8 (glavnyy vrach N.T.Starkova) pri Moskovskom gosudarstvennom universitete imeni Lomonosova.

PADINA, L. P.

Padina, L. P. -- "The Synthesis, Structure, and Certain Reactions of the Derivatives of Hydrazine and Monoacyl Dihydrophenazine (The Problem of the Connection between the Chemical Structure and the Ability to Form Free Hydrogen Radicals)." Min Higher Education USSR. Ural Polytechnic Inst Imeni S. M. Kirov. Sverdlovsk, 1956 (Dissertation for the Degree of Candidate in Chemical Science)

So: Knizhnaya Letopis' No 12, 1956

5(3) SOV/20-123-2-26/50

AUTHORS: Pushkareva, Z. [illegible], Radina, L. B.

TITLE: Synthesis and Properties of Phenazine Salts (Polucheniye i svoystva soley fenaziniya) On the Problem of the Interrelation Between the Chemical Structure and the Capability of Forming Free Nitrogen Radicals (K voprosu o vzaimosvyazi mezhdu khimicheskim stroyeniyem i sposobnost'yu obrazovaniya svobodnykh radikalov azota)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 301-304 (USSR)

ABSTRACT: The diaryl nitrogens (Ref 1), N-oxides of diaryl nitrogen (Ref 2), hydrazyl- (Ref 3), and some other radicals (Ref 4) belong to the free radicals where nitrogen forms the atom carrying a solitary electron. Free radicals in the alloxazine- (Ref 5) and phenazine (Ref 6) series belong to the same series of compounds. The latter are little investigated, but nevertheless are very interesting. The detailed investigation of their properties can contribute to the explanation of the nature of some biological redox processes. The synthesis of a

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Synthesis and Properties of Phenazine Salts. On the Problem of the Interrelation Between the Chemical Structure and the Capability of Forming Free Nitrogen Radicals

small number of derivatives of alloxazine and phenazine with properties of the free radicals of the so-called phenacyls (Ref 6) was described (Refs 5-8). In order to clarify the influence of the nature of the acyl upon the stability of the radicals of the type monoacetyl-phenazyl (II) the authors first synthesized chemically different azyls. In order to produce analogs of the monoacetyl phenazyl a great number of monoacyl-dihydro-phenazines (V) - (XI) were synthesized, which contain different acyl radicals. (VII) - (XI) were synthesized for the first time. A short characteristics of the produced substances is given in table 1. In all cases the experimentally found dipolar moments (in benzene at 25°, Table 1) were close to the moments calculated for various configurations of the substances in question. The acyl radical in these compounds is, as a rule, in a transposition to the phenyl nuclei of the dihydro phenazine part of the molecule, and in a cisposition with respect to the hydrogen of the NH group (Fig 1). Based on these facts it may be assumed that the acyl radical which is

Synthesis and Properties of Phenazine Salts. On the Problem of the Interrelation Between the Chemical Structure and the Capability of Forming Free Nitrogen Radicals

taken out from the conjugation with the phenyl nuclei in such a configuration, does not exert any important effect upon the properties of the NH bond in the monoacyl dihydro phenazines. This assumption was proved by the measurement of the absorption spectra of the latter substances in the ultraviolet range (Table 1): Their spectra proved to be very close to each other and were also very similar to the spectrum of the diphenyl amine where the acyl radical lacks completely. The oxidation by an excess amount of ferric chloride of the compounds (V), (VI), and (VII) unexpectedly lead to the formation of an identical oxidation product (melting point 195-197°). This further transformed into a substance that was the same as the earlier known (Ref 7) orange-colored product (melting point 191-193°). The investigation of the latter showed that it does not contain an acetyl group and therefore forms a product of the oxidative deacylation of the monoacetyl dihydro phenazine; it is a complex containing 3-valent iron; its chlorine content amounts to 20.78%, that of nitrogen to 10.48%. This compound

Synthesis and Properties of Phenazine Salts. On the Problem of the Interrelation Between the Chemical Structure and the Capability of Forming Free Nitrogen Radicals

also is highly paramagnetic. Its ultraviolet spectrum is similar to that of phenazine and completely different from the spectrum of monoacetyl dihydro phenazine (Fig 2). From these and other properties the formula (XII) is proposed for the oxidation product of the monoacetyl dihydro phenazine that has the properties of a free radical. It contains two molecules of hydrochloric phenazine (of the type of the Veits salts) which, according to coordination, are bound to the $FeCl_3$. The mentioned orange-colored product (formula (XIII)) probably is the result of several transformations of the phenazine cation. The formation of the latter cation was experimentally proved (formula (XIV)). It is the known black substance (Ref 7) with the melting point at 137^0. There are 2 figures, 1 table, and 10 references, 3 of which are Soviet

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnical Institute imeni S. M. Kirov)

5(3) SOV/20-123-3-28/54

AUTHORS: Radina, L. B., Pushkareva, Z. V., Kokoshko, Z. Yu.

TITLE: Structure of Some Hydrazine Derivatives Versus Their Properties, Especially, Their Ability of Dissociation Into Free Radicals (O strukture, svoystvakh i sposobnosti k dissotsiatsii na svobodnyye radikaly nekotorykh proizvodnykh gidrazina) On the Relationship Between Chemical Structure and the Ability of Forming Free Nitrogen Radicals (K voprosu o vzaimosvyazi mezhdu khimicheskim stroyeniyem i sposobnost'yu k obrazovaniyu svobodnykh radikalov azota)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 3, pp 483-486 (USSR)

ABSTRACT: The causes of the opposite character of the rules governing the dissociation into free radicals of the molecules of: hexaarylethanes (I), tetraaryl hydrazines (II) and N-oxides of the diaryl nitrogen according to the structure of the substituents in the phenyl rings (X) remained as yet unsolved. The presented scheme illustrates the interrelation between the character of the substituent groups and the formation of free radicals in the series of compounds of this type. For the experimental

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Structure of Some Hydrazine Derivatives Versus Their Properties, Especially, Their Ability of Dissociation Into Free Radicals. On the Relationship Between Chemical Structure and the Ability of Forming Free Nitrogen Radicals

elucidation of the causes of the above-mentioned facts, the authors investigated the chemical transformations and the polarographic reductibility as well as the dipole moments of a specially selected group of substances of the series of the di- and tetra-substitution products of hydrazine. Among substances investigated the so-called model-compounds have a central position: tetraphenylhydrazine (II, X=H), which moderately dissociates into 2 molecules of diphenyl-nitrogen; tetra-p-nitrophenyl-hydrazine (II, $X=NO_2$) which cannot be dissociated into radicals; finally tetra-p-anisyl-hydrazine (II, $X=OCH_3$) which possesses an increased dissociating power into free radicals; further the diphenyl-hydrazine substitution products corresponding to the compounds mentioned with a general formula(IV). The results of the polarographic reduction of the hydrazine derivatives (on the micro polarograph of Heyrovsky) in acetate-and ammonia-buffer solutions are given in table 1. The following was found: 1) Each substitution of the hydrogens in hydrazine (mono-, di- or tetra-) facilitates

Structure of Some Hydrazine Derivatives Versus Their Properties, Especially, Their Ability of Dissociation Into Free Radicals. On the Relationship Between Chemical Structure and the Ability of Forming Free Nitrogen Radicals

the reduction on the dropping mercury electrode. 2) In the series of the diaryl-substituted hydrazines the half-wave potential at the introduction of NO_2-groups into the p-positions of the phenyl rings is shifted into the direction of the positive values due to the conjugation by the electron acceptor effect of the nitro group, viz. the reduction of the N-N bond is facilitated. On the introduction of the methoxy group (electron donor) the contrary is observed - a sharp jerk of the potential into the direction of negative values (Table 2). 3) On the transition of di-substituted hydrazines to the tetra-substituted hydrazines the influence exerted by the substituents on the solidity of the N-N bond changes surprisingly: the nitro groups at a p-position of the phenyl ring shift the half-wave potential into the direction of the negative values, whereas the introduction of methoxy groups is not followed by the expected complication of the reduction of the N-N bond on the dropping mercury electrode (Table 2). It can be assumed that

Structure of Some Hydrazine Derivatives Versus Their Properties, Especially, Their Ability of Dissociation Into Free Radicals. On the Relationship Between Chemical Structure and the Ability of Forming Free Nitrogen Radicals

in the tetraaryl hydrazines contrary to the di-aryl hydrazines both the electron acceptors (nitro groups) and the electron donors (methoxy groups) were removed by some factors from the conjugation with the p-electrons of the central nitrogen atoms. The comparison of the measured and computed dipole moments of the various hydrazine configurations showed that nearly all investigated derivatives and the simple hydrazine itself have no free dipolar rotation in relation with the N-N bond (Fig 1). The reasons are steric hindrances which occur both in the cis- and in the trans-configuration and cause the absence of the p-π-conjugation in the molecule. There are 1 figure, 2 tables, and 11 references, 1 of which is Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnical Institute imeni S. M. Kirov)

PRESENTED: November 20, 1956, by I. N. Nazarov, Academician

VORONINA, N.M.; PUSHKAREVA, Z.V.; RADINA, L.B.; BABIKOVA, N.V.

Synthesis and study of some acridine compounds and their N-oxides. Part 1. Zhur.ob.khim. 30 no.10:3476-3480 O '61. (MIRA 14:4)

1. Sverdlovskiy nauchno-issledovatel'skiy institut po profilaktike poliomiyelita.
(Acridine)

RADINA, L.B.; PUSHKAREVA, Z.V.; VORONINA, N.M.; KHVOROVA, N.M.

Polarographic reduction of some acridine derivatives. Part 2.
Zhur.ob.khim. 30 no.10:3480-3486 O '61. (MIRA 14:4)

1. Sverdlovskiy nauchno-issledovatel'skiy institut po profilaktike poliomiyelita.
(Acridine) (Reduction, Electrolytic)

RADINA, L.B.; PUSHKAREVA, Z.V.

Synthesis of B-(9-acridyl)-alanine and its N-oxides. Zhur.ob. khim. 31 no.7:2362-2367 Jl '61. (MIRA 14:7)

1. Sverdlovskiy nauchno-issledovatel'skiy institut po profilaktike poliomiyelita.
(Alanine)

RADINA, L.B.; AGLITSKAYA, K.V.; CHERKASOVA, A.I.; PUSHKAREVA, Z.V.

Derivatives of acridine. Part 4: Synthesis of N$^{\alpha}$-9-(6-chloro-2methoxy)acridyl-α-amino acids. Zhur. ob. khim. 34 no. 5:1543-1545 My '64. (MIRA 17:7)

1. Sverdlovskiy nauchno-issledovatel'skiy institut virusnykh infektsiy.

RADINA, L.B.; KHVOROVA, N.M.; PUSHKAREVA, Z.V.

Synthesis of compounds in the series of natural α-amino acid hydrazides. Part 2: Hydrazides of some N-acetyl-α-amino acids and their derivatives. Zhur. ob. khim. 34 no.7:2140-2145 Jl '64 (MIRA 17:8)

1. Sverdlovskiy nauchno-issledovatel'skiy institut virusnykh infektsiy.

[illegible], N.P., [illegible], A.P., [illegible], [illegible]

Synthesis of hydrazides of natural [illegible] amino acids. Part 1. N'-substituted hydrazides of some natural [illegible] amino acids. Zhur. obs. khim. 34 no. 5 [illegible] (MIRA 17:7)

1. Dvorkovskiy nauchno-issledovatel'skiy [illegible] virusnykh infektsiy.

[illegible], M.I.; KRUGLYAKOV, A.M.; RADINA, M.M., red.

[Mechanization of the preparation and placement of fertilizers] Mekhanizatsiia podgotovki i vneseniia udobrenii. Izd.3., dop. i ispr. Moskva, Kolos, 1965. 286 p. (MIRA 18:7)

KADINA, N.P., fel'dsher

Work of Medvedkovsk medical center in health protection for children.
Med. sestra 20 no.7:35-36 Jl '61. (MIRA 14:10)

1. Iz Lesnogo rayona Kalinskoy oblasti.
(KALININ PROVINCE--CHILDREN--CARE AND HYGIENE)

RADINA, V.V., inzh.

Relative density of sands. Trudy Gidroproekta 3:163-170 '60.
(MIRA 13:7)

1. Nauchno-issledovatel'skiy sektor Vsesoyuznogo proyektno-izykatel'skogo i nauchno-issledovatel'skogo instituta "Gidroproyekt" imeni S.Ya.Zhuka.
(Sand--Density)

RADIN, YE, F.,

..., ... - KAND. TEKHN. NAUK i RADIN, YE, F., - INZH.

Vsesoyuznyy nauchno-issledovatel'skiy institut stroitel'noy keramiki.

Razrabotka glukhikh tsirkoniyevykh i titanovykh glazurey dlya proizvodstva stroitel'nogo fayansa i keramicheskikh vann. Page 98

SO: Collection of Annotations of Scientific Research Work on Construction, completed in 1950, Moscow, 1951

SEREDENKO, M.M., kand.ekon.nauk; KUGUSHEV, M.F. [Kuhushev, M.F.]; PRAVDIN, M.V.; FOMICHEV, V.I.; ALEKSANDROVA, V.P.; GORODETSKIY, N.I. [Horodets'kyi, N.I.]; DYATLOV, T.I.; KALITA, M.S. [Kalyta, M.S.]; DARAGAN, M.V. [Darahan, M.V.]; RADINA, Yu.M.; VOROB'YEVA, K.T. [Vorobyova, K.T.]; LASTIVKA, N.N.; STARODUBSKIY, R.D. [Starodubs'kyi, R.D.]; YATSENKO, P.F.; MUROMTSEVA, G.M. [Muromtseva, H.M.]; RASNER, S.I.; CHERNYAK, K.I.; KOBILYAKOV, I.I. [Kobyliakov, I.I.]; ALEKSANDROVA, V.O., kand.ekonom.nauk, otv.red.; DEMIDYUK, V.F. [Demydiuk, V.F.], red.; LIBERMAN, T.R., tekhn.red.

[Ways of increasing profits in metallurgical industries] Shliakhy pidvyshchennia rentabel'nosti metalurgiinykh pidpryiemstv. Kyiv, Vyd-vo Akad.nauk URSR, 1961. 93 p. (MIRA 14:6)

1. Akademiya nauk USSR, Kiyev. Institut ekonomiki. 2. Institut ekonomiki AN USSR (for Seredenko, V.P.Aleksandrova, Kalita, Daragan, Radina). 3. Dnepropetrovskiy khimiko-tekhnologicheskiy institut (for Gorodetskiy, Dyatlov). 4. Dneprodzerzhinskiy metallurgicheskiy institut (for Kobilyakov).
(Dnepropetrovsk Province--Steel industry--Costs)

RADINA, Yu. V.

Distr: 4E2c

412. Production and service of highly grogged ladle bricks.—N. N. KIRILLOVA, Yu. V. RADINA, and D. Y. SAKOVSKII (*Ogneupory*), 22, 348, 1957). In Russian. A survey of Russian refractories plants. The semi-dry method is mostly used, accounting for 92% of all ladle-bricks produced. The grog should contain c. 30% fines (— 0·088 mm); normal ball-milling gives only 12–14% of this fraction. The bricks are generally fired in gas-fired tunnel or annular kilns. Chasov-Yar "kaolinized" bricks are better than other Russian products; (P.C.E., 1,750°; apparent porosity, 15%). It is recommended that ladle lining should be thicker towards the bottom, where attack is greatest. With alloy steels, ladle life is 20% less than with plain steels. (8 tables.)

AUTHORS: Nazarov, M. P., Kirillova, N. N., SOV/131-58-10-1/11
Radina, Yu. V.

TITLE: Technology and Quality of Magnesite-Chromite Arch Bricks (Sostoyaniye tekhnologii i kachestvo magnezitokhromitovogo svodovogo kirpicha)

PERIODICAL: Ogneupory, 1958, 23- Nr 10, pp. 454-461 (USSR)

ABSTRACT: At the beginning of 1958, "Giprogneupor" made a survey of the **Zaporozh'ye, Chasov Yar, Panteleymonovka, "Magnezit"** plants and of the Kuznetsk metallurgicheskiy kombinat **(Kuznetsk Metallurgical Plant).** In all of these plants magnesite-chromite bricks are produced following approximately the same process. The chemical composition of the raw material is given in table 1 and the composition of the layers in table 2. The grain sizes of the initial materials in the respective plants are shown in tables 3 and 3a and the specific gravity of the bricks in table 4. Table 5 contains information on the burning of magnesite-chromite bricks in tunnel kilns and table 6 in gas-chamber kilns. The characteristic properties of these bricks for the year 1957 may be seen in table 8. The proper-

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ties of arch bricks have to be improved and their output must be increased.
There are 8 tables.

ASSOCIATION: Gisogneupor

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SOV/131-58-11-5/9

15(6)
AUTHORS: Kirillova, N. N., Nazarov, M. P., Radina, Yu. V.

TITLE: The Performance of Refractory Materials in Open-Hearth Furnaces (Sluzhba ogneuporov v martenovskikh pechakh)

PERIODICAL: Ogneupory, 1958, Nr 11, pp 509-516 (USSR)

ABSTRACT: Magnesite-chromite vault bricks are produced in the following plants: "Magnezit", Zaporozhskiy, Chasov-Yarskiy imeni Ordzhonikidze, Panteleymonovskiy imeni K. Marks, as well as in the Department for Refractory Materials of the Kuznetskiy Metallurgic Kombinat (KMK). A description of the bricks is given in table 1. The magnesite-chromite vaults were constructed according to a design by Frenkel' (UNIIO). The highest degree of stability with the use of oxygen was obtained in the furnaces of the "Zaporozhstal" Plant and of the Nizhne-Tagil'skiy Metallurgic Kombinat (Table 2). Table 3 shows the performance of open-hearth furnaces of equal capacity with magnesite-chromite vaults. In another table data concerning equal furnaces of the NTMK are listed. In recent years unburned magnesite-chromite bricks were used for open-hearth furnaces of low capacity (Table 4). A description of port bricks is given in table 5.

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The Performance of Refractor **Materials** in Open-Hearth Furnaces

Table 6 shows the stability of the upper rows of the ports of air regenerators. The performances of ports and open-hearth furnaces in the MMK are described in table 7. Another table gives the consumption of refractory material per ton of steel. Conclusions: for furnaces operating intensively, as well as those in which metal alloys are melted, the vaults should be built of bricks containing periclase-spinellide or of high density magnesite-chromite bricks burnt at high temperature, respectively, according to the method of the UNIIO; magnesite-chromite brickwork is suitable for the lining surface of the slag-pocket vaults and the dinas walls of the slag pockets; for the brickwork of the upper furnace ports, where there are oxygen and very high temperatures, forsterite bricks are recommended; in other furnaces it is advisable to use highly aluminiferous and dinas-chromite bricks; the quality of the magnesite-chromite vault bricks must be improved; the density of the forsterite port bricks must be increased. There are 9 tables.

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The Performance of Refractory Materials in Open-Hearth Furnaces

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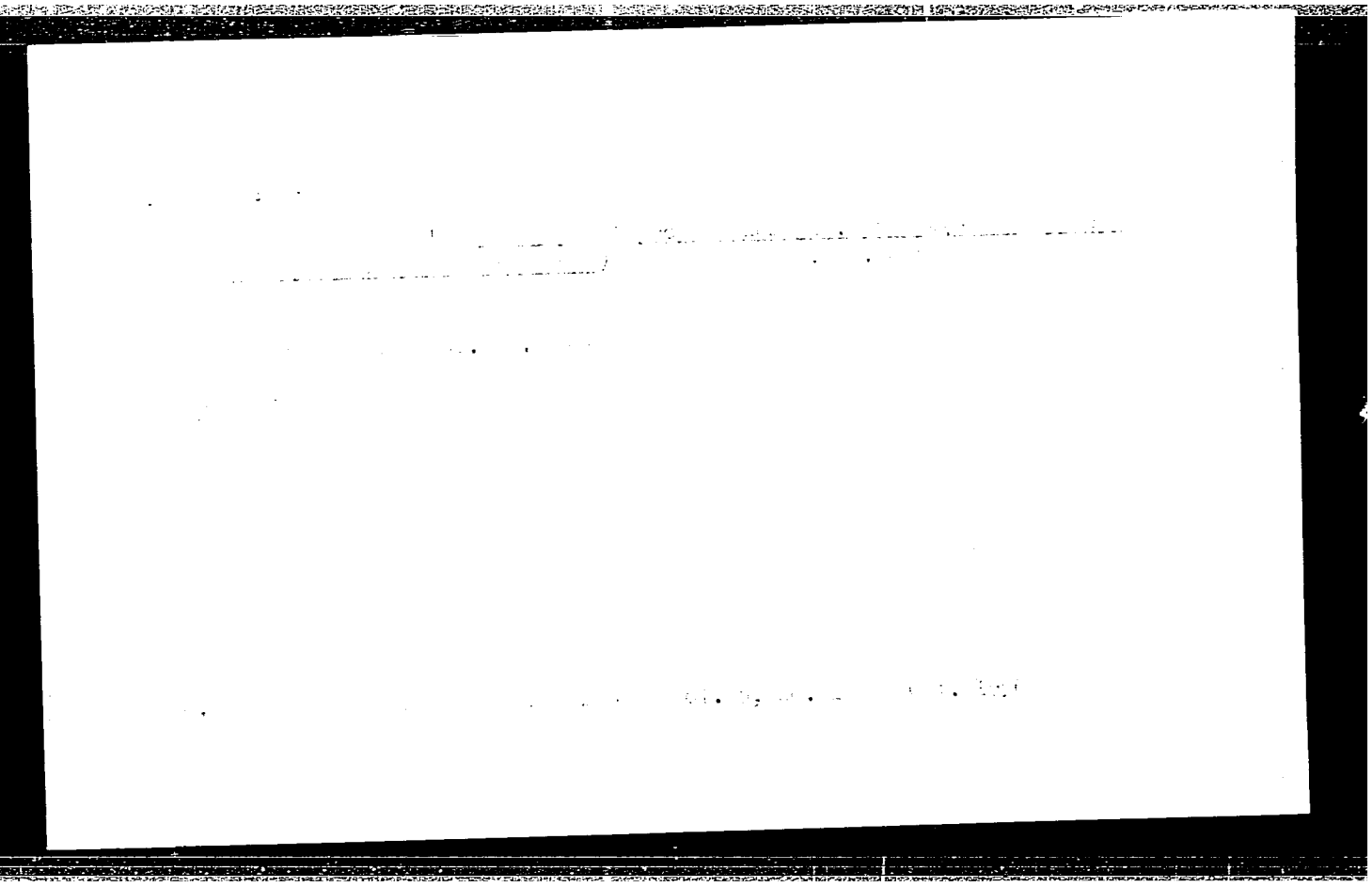

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